

CLAIMS

1 1. A computer-implemented method for generating a gain adjust signal to establish an
2 audio output level, comprising:

3 receiving at least one person-microphone position signal representative of a position
4 of a person relative to a microphone;

5 determining a gain adjust signal based at least in part on the person-microphone
6 position signal; and

7 using the gain adjust signal to establish the audio output level.

1 2. The method of Claim 1, wherein the person-microphone position signal is derived from
2 a video system.

1 3. The method of Claim 2, wherein the gain adjust signal is determined based at least
2 partially on at least one of: a distance from a person's mouth to a microphone, an orientation of a
3 person's head relative to the microphone, and a head location relative to a direction of sensitivity of
4 a microphone.

1 4. The method of Claim 2, further comprising:
2 recording at least one calibration person-microphone position signal;
3 recording at least one calibration audio level; and
4 using the calibration signal and calibration level, generating at least one mapping.

1 5. The method of Claim 4, further comprising using the mapping to generate at least one
2 gain adjust signal based on at least one person-microphone position signal.

1 6. The method of Claim 1, wherein the person-microphone position signal is derived from
2 a motion sensing system or a position sensing system or an orientation sensing system or a distance
3 sensing system.

1 7. The method of Claim 1, wherein the person-microphone position signal is derived from
2 a laser system.

1 8. The method of Claim 1, wherein the gain adjust signal is determined
2 contemporaneously with a recording of the person.

1 9. The method of Claim 1, wherein the person-microphone position signal is recorded.
2 then the gain adjust signal is determined after a recording of the person.

1 10. The method of Claim 1, wherein the gain adjust signal is a fast response gain adjust
2 signal, and the method further comprises determining a slow response gain adjust signal based on an
3 audio stream.

1 11. A digital processor programmed to undertake logic for dynamically establishing a gain
2 of an audio system, the logic including:

3 receiving a video stream representative of at least one person and at least one
4 microphone;

5 deriving person-microphone position signals using the video stream; and

6 using at least some of the person-microphone position signals, generating audio gain
7 adjust signals for input thereof to the audio system.

1 12. The digital processor of Claim 11, wherein the logic further includes determining an
2 audio gain adjust signal based at least partially on: a distance from a person's mouth to a
3 microphone, or an orientation of a person's head relative to the microphone.

1 13. The digital processor of Claim 12, wherein the logic further comprises:

2 recording at least one calibration person-microphone position signal:

3 recording at least one calibration audio level contemporaneously with the calibration
4 person-microphone position signal; and

5 using the calibration signal and calibration level, generating at least one mapping.

1 14. The digital processor of Claim 13, wherein the logic further comprises using the
2 mapping to generate at least one gain adjust signal based on at least one person-microphone position
3 signal.

1 15. The digital processor of Claim 11, wherein the gain adjust signal is determined
2 contemporaneously with recording the person.

1 16. The digital processor of Claim 11, wherein the person is recorded, then the gain adjust
2 signal is determined after the recording of the person.

1 17. A computer program product including:

2 computer readable code means for receiving light reflection signals representative of
3 light reflected from a person and light reflected from a microphone;

4 computer readable code means for, based on the light reflection signals, determining
5 an orientation signal; and

6 computer readable code means for generating an audio gain adjust signal based on the
7 orientation signal.

1 18. The computer program product of Claim 17, further comprising:

2 computer readable code means for recording at least one calibration person-
3 microphone position signal;

4 computer readable code means for recording at least calibration one audio level; and

5 computer readable code means for, using the calibration signal and calibration level,
6 generating at least one mapping.

1 19. The computer program product of Claim 18, further comprising computer readable
2 code means for using the mapping to generate at least one gain adjust signal based on at least one
3 person-microphone position signal.

1 20. An audio system, comprising:

2 at least one microphone electrically connected to at least one audio amplifier having
3 at least one audio gain;

4 at least one video camera; and

5 at least one processor receiving signals from the video camera and establishing the
6 audio gain in response thereto.

1 21. The system of Claim 20, wherein the processor determines a gain adjust signal based
2 at least partially on: a distance from a person's mouth to a microphone as determined from the video
3 camera signals. or an orientation of a person's head relative to the microphone as determined from
4 the video camera signals.

1 22. The system of Claim 20, wherein the processor records at least one calibration person-
2 microphone position signal and at least calibration one audio level, and uses the calibration signal
3 and calibration level to generate at least one mapping useful in generating the gain adjust signal.

1 23. The system of Claim 20, further comprising a slow adjust filter using an audio stream
2 to generate a slow gain adjust signal.

1 24. An audio system, comprising:

2 at least one microphone electrically connected to at least one audio amplifier having
3 at least one audio gain;

4 at least one source of person-microphone position signals; and

5 at least one processor receiving signals from the source and establishing the audio gain
6 in response thereto.

1 25. The system of Claim 24, wherein the source is a video camera.

1 26. The system of Claim 24, wherein the source is a motion sensing system of a laser
2 system or a position sensing system or an orientation sensing system or a distance sensing system.

1 27. The system of Claim 24, further comprising a slow adjust filter using an audio stream
2 to generate a slow gain adjust signal.

1 28. The method of Claim 1, wherein the gain adjust signal is determined by selecting one
2 of several microphone outputs based on head position.

1 29. The system of Claim 24, wherein the source is an illumination-based pupil detector
2 or a face detector.